DETAILED ACTION

Claim Objections

1. Claim 33 is objected to because of the following informalities: in line 2, the phrase “and configure to rotate” should read -- and configured to rotate --. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 17 and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 17 recites the limitation "said fix portion" in line 7. There is insufficient antecedent basis for this limitation in the claim.

5. Claim 33 recites the limitation "said input member" in lines 3 and 4. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-5, 10-13, 21, 23, 24, 31 and 33, are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackel et al. (USP-6,213,270) in view of Fukushima (USP-4,842,116).

Re clms 1 and 31: Jackel discloses (embodiment of Fig. 2) a flywheel assembly comprising:

- A flywheel (3) having a clutch friction surface (9) frictionally engaging and disengaging a clutch disk (168, C9 L65-C10 L14)
- A damper mechanism (8) elastically rotatably connecting (Fig. 2) said flywheel to a crankshaft (shown in phantom lines, Fig. 2) of an engine
- A support member (15) supporting and positioning said flywheel on said crankshaft in a radial direction (C10 L39-50)

Jackel does not explicitly disclose the crankshaft having an annular protrusion having an outer circumferential surface supporting an inner circumferential surface of said support member, said support member being supported in the radial direction by said annular protrusion of the crankshaft, wherein said annular protrusion is a protrusion having the form of a ring having a vacant center.

Fukushima teaches a crankshaft (100) having an annular protrusion (Fig. 13) having an outer circumferential surface supporting an inner circumferential surface of a support member (member between the bearing and the crankshaft), said support member being supported in the radial direction by said annular protrusion of the crankshaft, wherein said annular protrusion is a protrusion having the form of a ring

having a vacant center (Fig. 13), for the purpose of supporting and centering the support member on the crankshaft.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified the device of Jackel such that the crankshaft has an annular protrusion having an outer circumferential surface supporting an inner circumferential surface of a support member, said support member being supported in the radial direction by said annular protrusion of the crankshaft, as taught by Fukushima, for the purpose of supporting and centering the support member on the crankshaft.

Re clm 2: Jackel further discloses said flywheel is formed with an inner circumferential surface (near 4, Fig. 2) and said support member is formed with an outer circumferential surface (near 6, Fig. 2) opposing said inner circumferential surface in the radial direction.

Re clm 3: Jackel further discloses said support member has a cylindrical support portion (near 6, Fig. 2) having said outer circumferential surface.

Re clm 4: Jackel further discloses a radial bearing (6) disposed between said outer circumferential surface of said support member and said inner circumferential surface of said flywheel (Fig. 2).

Re clm 5: Jackel further discloses said radial bearing is composed of a cylindrical member (outer race of 6).

Re clm 10: Jackel further discloses an inertia member (14) and a fix member (19) that fixes said support member and said inertia member (14) to said crankshaft.

Re clm 11: Jackel further discloses said support member contacts said inertia member to center said inertia member in the radial direction (Fig. 2).

Re clm 12: Jackel further discloses said support member has a fix portion (18) to be fixed to a tip of said crankshaft (Fig. 2).

Re clm 13: Jackel further discloses said fix portion is an annular flat disk-like portion (Fig. 2) and said support portion extends in the axial direction from an edge of said fix portion (Fig. 2).

Re clm 21: Jackel further discloses said fix member is a bolt (Fig. 2).

Re clm 23: Jackel further discloses an inertia member (2, 14) separately formed from said support member, wherein said support member has a fix portion (18) fixed to a tip of said crankshaft (Fig. 2), and a support portion (bearing surface on 15) extending in an axial direction from an edge of said fix portion (Fig. 2), and said fix portion is axially arranged between said crankshaft and said inertia member, and said inertia member is axially arranged between said fix portion and said damper mechanism (Fig. 2).

Re clm 24: Jackel further discloses said fix portion contacts said crankshaft (Fig. 2).

Re clm 33: Jackel further discloses a pair of output members (21-23, Fig. 2) connected to said flywheel and configured to rotate relative to an input member (20), wherein said input member is arranged to be axially between said pair of output member to transmit torque to said pair of output members via said damper mechanism (see Fig. 2 and C11 L9-15).

8. Claims 1, 23 and 24, are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackel et al. (USP-6,213,270) in view of Fukushima (USP-4,842,116).

Re clm 1: Jackel discloses (embodiment of Fig. 12) a flywheel assembly comprising:

- A flywheel (903) having a clutch friction surface (right surface of 903, Fig. 12) frictionally engaging and disengaging a clutch disk (Fig.12)
- A damper mechanism (908) elastically rotatably connecting (Fig. 12) said flywheel to a crankshaft (shown in phantom lines, Fig. 2) of an engine
- A support member (904) supporting and positioning said flywheel on said crankshaft in a radial direction (Fig. 12, C29 L64-66 and C10 L39-50)

Jackel does not explicitly disclose the crankshaft having an annular protrusion having an outer circumferential surface supporting an inner circumferential surface of said support member, said support member being supported in the radial direction by said annular protrusion of the crankshaft.

Fukushima teaches a crankshaft (100) having an annular protrusion (Fig. 13) having an outer circumferential surface supporting an inner circumferential surface of a support member (member between the bearing and the crankshaft), said support member being supported in the radial direction by said annular protrusion of the crankshaft (Fig. 13) for the purpose of supporting and centering the support member on the crankshaft.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified the device of Jackel such that the crankshaft has an annular protrusion having an outer circumferential surface supporting an inner circumferential surface of a support member, said support member being supported in the radial direction by said annular protrusion of the crankshaft, as taught by Fukushima, for the purpose of supporting and centering the support member on the crankshaft.

Re clm 23: Jackel further discloses an inertia member (902) separately formed from said support member, wherein said support member has a fix portion (portion corresponding to 18 in Fig. 2) fixed to a tip of said crankshaft, said fix portion being an annular flat disk-like portion, and a support portion (bearing surface on 904) extending in an axial direction from an edge of said fix portion (Fig. 12), and said fix portion is axially arranged between said crankshaft and said inertia member, and said inertia member is axially arranged between said fix portion and said damper mechanism (Fig. 12).

Re clm 24: Jackel further discloses said fix portion contacts said crankshaft (Fig. 12).

9. Claims 17, 18, 22, 25-30, and 32, are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackel et al. (USP-6,213,270) in view of Fukushima (USP-4,842,116) further in view of Maucher et al. (USP-4,732,250).

Re clms 17, 18 and 22: Jackel discloses (Fig. 12) a flywheel assembly comprising:

- A flywheel (903) having a clutch friction surface (right surface on 903) frictionally engaging and disengaging a clutch disk (Fig. 12)
- A damper mechanism (908) elastically rotatably connecting (Fig. 12) said flywheel to a crankshaft (shown in phantom lines, Fig. 2) of an engine, said damper mechanism including an input member (922) attached to said crankshaft (via 919, C30 L3-9)
- An inertia member (902, 962) being axially arranged between a fix portion (portion in Fig. 12 corresponding to 18 of Fig. 2) and said input member (Fig. 12)
- A support member (904) supporting and positioning said flywheel on said crankshaft in a radial direction (C29 L64-66 and C10 L39-50)
- Said input member being independent of and separate from said support member, said fix portion being axially arranged between said crankshaft and said inertia member (Fig. 12),
- A fix member (919) to fix said support member and said input member to said crankshaft.

Jackel does not explicitly disclose the crankshaft having an annular protrusion having an outer circumferential surface supporting an inner circumferential surface of said support member, said support member being supported in the radial direction by said annular protrusion of the crankshaft.

Fukushima teaches a crankshaft (100) having an annular protrusion (Fig. 13) having an outer circumferential surface supporting an inner circumferential surface of a support member (member between the bearing and the crankshaft), said support member being supported in the radial direction by said annular protrusion of the crankshaft (Fig. 13) for the purpose of supporting and centering the support member on the crankshaft.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified the device of Jackel such that the crankshaft has an annular protrusion having an outer circumferential surface supporting an inner circumferential surface of a support member, said support member being supported in the radial direction by said annular protrusion of the crankshaft, as taught by Fukushima, for the purpose of supporting and centering the support member on the crankshaft.

While Jackel does indeed disclose that the input member (922) is clamped between the bolt (919) and the inner wall of the inertia member (902, 962; C30 L3-9), Jackel does not explicitly disclose an inner radial portion of the input member contacts an outer circumferential surface of the support member.

Maucher teaches (Fig. 3) an input member (18') has an inner radial portion that contacts an outer circumferential surface of a support member (23') of a support member (29') for the purpose of supporting and centering the input member.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified the device of Jackel such that an inner

circumferential surface of the input member contacts an outer circumferential surface of the support portion, as taught by Maucher, for the purpose of supporting and centering the input member.

Re clm 25: Jackel in view of Fukushima disclose all of the claim limitations as described above.

Jackel discloses an inner circumferential surface of said inertia member contacts an outer circumferential surface of said support portion (Fig. 12). While Jackel does indeed disclose that the input member (922) is clamped between the bolt (919) and the inner wall of the inertia member (902, C30 L3-9), Jackel does not explicitly disclose an inner circumferential surface of the damper mechanism contacts an outer circumferential surface of the support portion.

Maucher teaches (Fig. 3) a damper mechanism (26') has an inner circumferential surface (inner surface of 28') that contacts an outer circumferential surface of a support portion (23') of a support member (29') for the purpose of supporting and centering the damping mechanism.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified the device of Jackel such that an inner circumferential surface of the input member contacts an outer circumferential surface of the support portion, as taught by Maucher, for the purpose of supporting and centering the input member.

Re clm 26: Jackel further discloses said inertia member includes a disk member (962) and an annular member (near 902, Fig. 12) fixed to a radially outer end of said disk member.

Re clm 27: Jackel further discloses an inertia member (902, 962) is separately formed from said support member, said support member has a fix portion (portion in Fig. 12 corresponding to 18 of Fig. 2) being fixed to a tip of said crankshaft (Fig. 12), said fix portion being an annular flat disk-like portion (Fig. 12), and a support portion (bearing surface of 904) extending in an axial direction from an edge of said fix portion (Fig. 12), and said fix portion is axially arranged between said crankshaft and said inertia member, and said inertia member is axially arranged between said fix portion and said input member (Fig. 12).

Re clm 28: Jackel further discloses said fix portion contacts said crankshaft (Fig. 12).

Re clm 29: Jackel further discloses inner circumferential surfaces of said inertia member (inner surface of 902, 962) and said input member (inner surface of 922a) contact an outer circumferential surface of said support portion (Fig. 12, C30 L3-9).

Re clm 30: Jackel further discloses said inertia member includes a disk member (962) and an annular member (near 902, Fig. 12) fixed to a radially outer end of said disk member.

Re clm 32: Jackel further discloses said fix member (919) fixes said input member (922) to said crankshaft at an inner radial portion of said input member (Fig. 12).

Response to Arguments

10. Applicant's arguments filed 7/14/2008 have been fully considered but they are not persuasive.

Regarding claims 1 and 17, Applicant argues that Jackel in view of Fukushima does not disclose "a crankshaft having an annular protrusion that has an outer circumferential surface that supports an inner circumferential surface of the support member" and refers to figure 1 to support the argument. However, the rejection is based on the reference as a whole. While Figure 1 may not explicitly show that the protrusion is annular (i.e. shaped like a ring), figure 13 does indeed disclose a crankshaft having an annular protrusion. Therefore, forming a crankshaft having an annular protrusion that has an outer circumferential surface that supports an inner circumferential surface of the support member, is known from the prior art.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USP-6,481,552, USP-6,840,364 and USP-4,729,464 also disclose crankshafts having annular protrusions.

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW JOHNSON whose telephone number is (571)272-7944. The examiner can normally be reached on Monday - Friday 9:00a.m. - 5:30p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J./
Examiner, Art Unit 3656

/Richard WL Ridley/
Supervisory Patent Examiner, Art Unit 3656